

amorphous midblocks of poly(butylene), poly(ethylene-butylene), poly(ethylene-propylene) or a combination thereof,

(ii) about 300 to about 1,600 parts by weight of a plasticizing oil; in combination with or without

(II) at least one layer of an insulating gel formed from said

(i) crystal gel, Gn, in combination with

(iii) a selected amount of one or more heat expandable plastic or synthetic particulates of material so as to form a homogeneous or non-homogeneous closed cell particulate gel dispersion, (GnMm), wherein said crystal gel Gn having a gel rigidity of from about 20 to about 1,000 gram Bloom, said gel dispersion, (GnMm), having a gel rigidity of from 50 to about 3,000 gram Bloom, said crystal gel, Gn, and said gel dispersion, (GbMm), having an elongation of at least 200%, said crystal gel or crystal gel dispersion, (GnMm), capable of being formed in adhering contact with each other, another crystal gel dispersion or physically interlocked with a selected substrate material, Mn, to form one or more combinations of a crystal gel-substrate, crystal gel dispersion substrate, or crystal gel-substrate/crystal gel dispersion composites including a non-composite of a crystal gel dispersion alone, or a sequential addition or permutation of said combinations of (GnMm), (GnMm)(GnMm), (GnMm)Gn, Mn(GnMm), MnMn(GnMm), MnGnGn(GnMm), MnMnMn(GnMm), including MnGn(GnMm), (GnMm)GnMn, Gn(GnMm)Gn, Mn(GnMm)Mn, Mn(GnMm)Gn, (GnMm)GnGn, (GnMm)MnGn, Gn(GnMm)GnMn, (GnMm)GnMnMn, (GnMm)GnMnGn, (GnMm)MnGnGn, GnGn(GnMm)Mn, MnGn(GnMm)Gn, Mn(GnMm)(GnMm), Gn(GnMm)MnMn, (GnMm)Mn(GnMm), GnGn(GnMm)GnGn, Mn(GnMm)(GnMm)Gn, Gn(GnMm)MnGn, Gn(GnMm)(GnMm)Gn, (GnMm)(GnMm)(GnMm), (GnMm)MnGn(GnMm), MnGn(GnMm)(GnMm), Gn(GnMm)MnGnGn, MnMnGn(GnMm)Mn, MnGn(GnMm)(GnMm), MnGn(GnMm)GnGn, Gn(GnMm)Gn(GnMm), (GnMm)(GnMm)Gn, MnMnMn(GnMm)MnMn, Mn(GnMm)Gn(GnMm), Mn(GnMm)(GnMm)MnGn, (GnMm)Mn(GnMm)MnGn, MnGn(GnMm)Gn(GnMm), (GnMm)(GnMm)(GnMm)Gn, MnGn(GnMm)Gn(GnMm), (GnMm)(GnMm)(GnMm)Gn, Gn(GnMm)Gn(GnMm)GnGn, (GnMm)(GnMm)(GnMm)(GnMm), (GnMm)(GnMm)(GnMm)(GnMm), (GnMm)Gn(GnMm)Gn(GnMm)Gn, Gn(GnMm)(GnMm)(GnMm)GnGn, or (GnMm)(GnMm)(GnMm)(GnMm)(GnMm)Gn, where when n is a subscript of G, n denotes the same or different gel rigidity; where when n is a subscript of M, n denotes the same or different material of foam, plastic, fabric, knit fabric, yarn knit fabric, metal, wood, glass fiber, ceramics, synthetic resin, synthetic fibers or refractory materials; where when m is the subscript of M, m denotes the same or different microsphere of glass or thermoplastic resin; said

composites formed of one or more crystal gels or crystal gel dispersion of the same or different gel rigidity and one or more substrates of the same or different material; said crystal gel or crystal gel dispersion formed with or without

(iv) one or more of a selected polar polymer and in combination with or without

(v) one or more of a selected crystalline or non-crystalline polymer or copolymer.

Please add the following new claims:

(new claim) 11. A cold weather wear according to claim 1,
wherein said (i) block copolymer is poly(styrene-ethylene-butylene-
styrene), poly(styrene-ethylene-propylene-styrene), poly(styrene-
ethylene styrene), poly(styrene butylene-styrene), poly(styrene-
ethylene ethylene/butylene-styrene), poly(styrene-ethylene
ethylene/propylene-styrene), poly(styrene butylene
ethylene/propylene-styrene), poly(styrene-butylene ethylene/butylene-
styrene), poly(styrene-ethylene ethylene/propylene-ethylene-styrene),
poly(styrene-ethylene ethylene/butylene-styrene),
poly(styrene-butylene ethylene/butylene-butylene-styrene),
poly(styrene-ethylene butylene-ethylene/butylene-styrene),
poly(styrene-ethylene butylene-ethylene/propylene-styrene),
poly(styrene ethylene/butylene-ethylene/propylene-styrene),
poly(styrene ethylene-ethylene/butylene-ethylene/propylene-styrene),
poly(styrene-ethylene-ethylene/propylene-ethylene/butylene styrene),
poly(styrene-butylene-ethylene/butylene ethylene/propylene-styrene),
poly(styrene-ethylene/propylene-ethylene/ethylene/propylene-
styrene), poly(styrene-ethylene-ethylene/propylene-ethylene
ethylene/butylene-styrene), poly(styrene-ethylene/propylene butylene-
ethylene/propylene-styrene), poly(styrene butylene ethylene/butylene-
butylene-ethylene/butylene-styrene), poly(styrene-butylene-
ethylene/butylene-butylene ethylene/propylene styrene), poly(styrene-
ethylene ethylene/butylene-butylene-ethylene/propylene-styrene),
poly(styrene-ethylene-ethylene/propylene butylene ethylene/butylene-
styrene), poly(styrene-ethylene ethylene/propylene-ethylene-
ethylene/propylene-ethylene-styrene), poly(styrene-butylene-
ethylene/propylene-butylene ethylene/propylene butylene-styrene),
poly(styrene-ethylene ethylene/propylene-ethylene-ethylene/
butylene-ethylene/propylene-styrene)

styrene), poly(styrene-ethylene-ethylene/propylene-ethylene
ethylene/propylene-ethylene/butylene-styrene), poly(styrene ethylene-
ethylene/propylene-ethylene-ethylene/propylene-ethylene styrene),
poly(styrene-ethylene-ethylene/propylene ethylene/butylene-
ethylene/propylene-ethylene/butylene-butylene styrene), poly(styrene-
ethylene-butylene)n, poly(styrene-ethylene propylene)n, poly(styrene-
ethylene)n, poly(styrene-butylene)n, poly(styrene-ethylene-
ethylene/butylene)n, poly(styrene-ethylene ethylene/propylene)n,
poly(styrene-butylene-ethylene/propylene)n, poly(styrene-butylene-
ethylene/butylene)n, poly(styrene-ethylene ethylene/propylene-
ethylene)n, poly(styrene-ethylene ethylene/butylene)n,
poly(styrene-butylene ethylene/propylene-butylene)n, poly(styrene
butylene ethylene/butylene-butylene)n, poly(styrene-ethylene-butylene
ethylene/butylene)n, poly(styrene-ethylene-butylene
ethylene/propylene)n, poly(styrene-ethylene/ethylene
ethylene/propylene)n, poly(styrene-ethylene-ethylene/propylene
ethylene/butylene)n, poly(styrene-butylene-ethylene/propylene
ethylene/propylene)n, poly(styrene-ethylene-ethylene/propylene
ethylene/propylene)n, poly(styrene-ethylene-ethylene/propylene
ethylene/propylene)n, poly(styrene-ethylene
ethylene/propylene-ethylene-ethylene/propylene)n, poly(styrene
butylene-ethylene/butylene-butylene-ethylene/propylene)n,
poly(styrene-butylene-ethylene/ethylene/propylene)
ethylene/propylene)n, poly(styrene-ethylene-ethylene/ethylene
butylene/propylene)n, poly(styrene-ethylene
ethylene/propylene-butylene-ethylene/ethylene)n, poly(styrene
ethylene-ethylene/propylene-ethylene-ethylene/propylene ethylene)n,
poly(styrene-butylene-ethylene/propylene butylene ethylene/propylene-
butylene)n, poly(styrene-ethylene ethylene/propylene-ethylene-
ethylene/butylene)n, poly(styrene ethylene-ethylene/propylene-
ethylene-ethylene/propylene ethylene/butylene)n, poly(styrene-
ethylene-ethylene/propylene ethylene-ethylene/propylene-ethylene)n,
or poly(styrene-ethylene ethylene/propylene-ethylene/butylene-
ethylene/propylene ethylene/butylene-butylene)n or a mixture thereof.

(new claim) 12. A cold weather wear according to claim 1,
wherein said (iv) polar polymer is ethylene-butyl acrylate, ethylene-
ethyl acrylate, ethylene-methyl acrylate, ethylene-vinyl acetate,
ethylene-vinyl acrylate, ethylene vinyl alcohol, acrylonitrile

styrene-acrylate, styrene-acrylonitrile, styrene-maleic anhydride, maleated poly(styrene-ethylene-propylene styrene), maleated poly(styrene-ethylene-butylene-styrene) or a mixture thereof.

(new claim) 13. A cold weather wear according to claim 1, wherein said selected (v) crystalline or non-crystalline polymer or copolymer is poly(styrene-butadiene-styrene), poly(styrene-butadiene), poly(styrene-isoprene-styrene), poly(styrene-isoprene), poly(styrene-ethylene-propylene), low viscosity poly(styrene-ethylene-propylene-styrene), low viscosity poly(styrene-ethylene-butylene-styrene), poly(styrene-ethylene-butylene), maleated poly(styrene-ethylene-butylene-styrene), high vinyl content poly(styrene-ethylene-butylene-styrene), poly(styrene-ethylene-propylene-styrene-ethylene-propylene), poly(ethylene-propylene), poly(styrene-butadiene)n, poly(styrene-butadiene)n, poly(styrene-isoprene)n, poly(styrene-isoprene)n, poly(styrene-ethylene-propylene)n, low viscosity poly(styrene-ethylene-propylene)n, low viscosity poly(styrene-ethylene-butylene)n, poly(styrene-ethylene-butylene)n, maleated poly(styrene-ethylene-butylene)n, high vinyl content poly(styrene-ethylene-butylene)n, poly(styrene-ethylene-propylene-styrene-ethylene-propylene)n, poly(ethylene-propylene)n, polystyrene, polybutylene, poly(ethylene-propylene), poly(ethylene-butylene), polypropylene, polyethylene, polyphthalamide or polyurethane elastomer formed from one or more saturated hydrocarbon diols, wherein said selected block copolymer is a linear, branched, multiarm, or star shaped copolymer.

(new claim) 14. A cold weather wear according to claim 1, wherein said (i) copolymer of said gel is a thermoplastic polyurethane elastomer made with diisocyanates and chain extenders 2,2,4 trimethyl-1,3-pentanediol or 2 Butyl-2-ethyl-1,3-pentanediol and a saturated hydrocarbon diol, said polyurethane having one or more crystalline groups of about 22% to about 45% weight of said elastomer and capable of exhibiting a glass transition of at least about -40°C.

(new claim) 15. A cold weather wear according to claim 14, wherein said hydrocarbon diols is a hydroxyl terminated oligomer of poly(ethylene-butylene) or poly(ethylene-propylene).

(new claim) 16. A cold weather sock for footwear formed of a gel

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composite of claim 1, for direct contact with the foot and capable of substantially preventing the generation moisture from said foot.

Skt D (new claim) 17. A cold weather footwear according to claim 1

comprising:

(a) an outer boot,
(b) a performed sock disposed in said boot, said sock being a multi-interwoven layer sock disposed in said boot, said multi-interwoven layer having one or more inner top interwoven layers impregnated with sufficient amounts of said crystal gel so as to form a stable support and sufficient for encapsulating and sealing the skin of the foot from air and prevent the production of foot moisture.

B2 Inv A (new claim) 18. A cold weather footwear according to claim 1

comprising:

(a) an outer boot,
(b) a highly stable boot inner support having a top portion and a bottom inner insulating support portion, said top inner support portion having a few millimeter of surface made from a natural or synthetic dense batting material, said bottom inner insulating support portion having a dense open cell foam, or a felt material; said bottom insulating inner support portion forming a support for an inner gel sock disposed within said inner support, said inner gel sock being impregnated with sufficient gel so as to form a highly stable support and capable of encapsulating and sealing the skin of the foot from air and prevent the production of foot moisture; said inner gel sock having an outer polymeric membrane or film for separating said gel sock from said inner support to prevent migration of said gel or said plasticizing oil into said inner support or said bottom inner insulating support portion.

Skt D (new claim) 19. A cold weather face mask according to claim 1,

for protection of said head, face, eye, and neck areas against low temperatures and high wind velocities being made from the crystal gel or crystal gel composite for direct contact with the head, face, and neck having openings for insertion and removal of one or more hydrophilic patches in selected areas covered by said mask, said eye area with or without a corrective lens or wide view visor being incorporated with a visor tri-layers of MnGnMn or GnMnGn, said visor tri-layers including a polystyrene layer/gel layer/polystyrene layer,

a polycarbonate layer/gel layer/polycarbonate layer, a crystalline polypropylene layer/gel layer/polypropylene layer, or a clear silicone layer/gel layer/silicone layer; said hydrophilic patches being held in place by said gel on one side and in direct contact with the skin, held in place in a slit pocket between said gel, or held in place in a foam pocket or fabric pocket layer facing the skin; said hydrophilic patches comprising a natural materials, a water absorbing polymer, a hydrogel forming polymer, a salt tolerant super absorbent, a starch modified adsorbent or a polysaccharide, a starch or a cellulose modified polymer.

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(new claim) 20. A cold weather wear for protecting parts of a body against cold comprising: a footwear, a sock, a face mask, a glove and a body suit for protection of one or more selected areas of said body including the head, face, forehead, eyes, ears, nose, neck, hand, fingers, arms, underarm, torso, and back; said cold weather wear made from (I) one or more layers of a crystal gel, Gn, comprising:

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(i) 100 parts by weight of at least one linear, multi arm, branched, or star shaped block copolymer or a mixture thereof, said block copolymer having one or more substantially crystalline poly(ethylene) midblock in combination with one or more amorphous midblocks of poly(butylene), poly(ethylene butylene), poly(ethylene-propylene) or a combination thereof,

(ii) about 300 to about 1,600 parts by weight of a plasticizing oil;

(II) one or more layers of an insulating crystal gel, (GnMm), comprising:

(iii) a gel dispersion of said crystal gel, Gn, and a selected amount of one or more heat expandable plastic or synthetic particulates of material, Mm, so as to form a homogeneous or non-homogeneous closed cell particulate gel dispersion, (GnMm), where when m is the subscript of M, m denotes the same or different microsphere of glass or thermoplastic resin;

(III) a combination of said crystal gel or a crystal gel composite, GnMn or GnGn, with one or more layers of said insulating crystal gel; said crystal gel composite comprising: Gn in adhering contact, laminated or physically interlocked with a selected material Mn to form said crystal gel composite comprising combinations of Gn and Mn or Gn and Gn any sequential additions or permutations of said combinations GnGn, MnGn, GnMnGn, MnGnMn, MnMnGn, MnGnGnGn,

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MnMnMnGn, including MnGnGnMn, GnMnGnMn, GnGnMnGn, MnGnMnMn, MnGnMnGn, GnMnGnGn, GnMnMnGn, GnGnMnMn, GnGnMnGnMn, GnMnGnMnMn, GnMnGnMnGn, GnMnMnGnGn, GnGnGnMnMn, MnGnGnMnGn, MnGnMnGnMn, GnGnMnMnMn, GnMnMnGnMn, GnGnGnMnGnGn, MnGnMnGnMnGn, GnGnMnMnGn, GnGnMnGnMnGn, GnMnGnMnGnMn, GnMnMnGnGnMn, MnGnGnMnGnGn, GnGnMnGnGnMn, MnMnGnGnMnMn, MnGnGnMnGnGn, GnGnMnGnGnMn, MnMnGnGnMnMn, MnGnMnGnGnMn, GnMnGnMnGnGn, MnMnGnGnMnMnMn, MnGnMnGnGnMn, GnMnGnMnGnGn, MnGnMnGnMnGn, MnGnMnGnMnMnGn, MnGnMnGnGnMn, GnMnGnMnGnGnMn, MnGnMnGnMnGn, MnGnMnGnGnMnGn, or
GnMnGnMnGnMnGnMnGn, where when n is a subscript of G, n denotes the same or different gel rigidity; where when n is a subscript of M, n denotes the same or different material of foam, plastic, fabric, knit fabric, yarn knit fabric, metal, wood, glass fiber, ceramics, synthetic resin, synthetic fibers or refractory materials; said insulating gel capable of being made in adhering contact, laminated or physically interlocked with said crystal gel or said crystal gel composite, or another gel dispersion or physically interlocked with a selected substrate material, Mn, to form one or more combinations of a crystal gel-gel dispersion, gel dispersion-substrate, or crystal gel substrate/gel dispersion composites including a non composite of a gel dispersion alone, or a sequential addition or permutation of said combinations of (GnMm), (GnMm)(GnMm), (GnMm)Gn, Mn(GnMm), MnMn(GnMm), MnGnGn(GnMm), MnMnMn(GnMm), including MnGn(GnMm), (GnMm)GnMn, Gn(GnMm)Gn, Mn(GnMm)Mn, Mn(GnMm)Gn, (GnMm)GnGn, (GnMm)MnGn, Gn(GnMm)GnMn, (GnMm)GnMnMn, (GnMm)GnMnGn, (GnMm)MnGnGn, GnGn(GnMm)Mn, MnGn(GnMm)Gn, Mn(GnMm)(GnMm), Gn(GnMm)MnMn, (GnMm)Mn(GnMm), GnGn(GnMm)GnGn, Mn(GnMm)(GnMm)Gn, Gn(GnMm)MnGn, Gn(GnMm)(GnMm)Gn, (GnMm)(GnMm)(GnMm), (GnMm)MnGn(GnMm), MnGn(GnMm)(GnMm), Gn(GnMm)MnGnGn, MnMnGn(GnMm)Mn, MnGn(GnMm)(GnMm), MnGn(GnMm)GnGn, Gn(GnMm)Gn(GnMm), (GnMm)(GnMm)Gn, MnMnMn(GnMm)MnMn, Mn(GnMm)Gn(GnMm), Mn(GnMm)(GnMm)MnGn, MnGn(GnMm)Gn(GnMm), MnGn(GnMm)Gn(GnMm), (GnMm)(GnMm)(GnMm)Gn, Mn(GnMm)(GnMm)(GnMm)Gn, or
(GnMm)(GnMm)(GnMm)(GnMm)Gn; said crystal gel composites formed of one or more crystal gels or gel dispersion of the same or different gel rigidity and one or more substrates of the same or different material; said crystal gel having a gel rigidity of from about 20 to about 1,000 gram Bloom, said gel dispersion, (GnMm), having a gel rigidity of from 50 to about 3,000 gram Bloom, said crystal gel and said insulating gel having an elongation of at least

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